Contents

Volume 95 1990

Commentaries

Fairman, M. P.
DNA polymerase δ/PCNA: actions and interactions 1

Stebbings, H.
How is microtubule-based organelle translocation regulated? 5

Book Review 9

Colley, N. J., Tokuyasu, K. T. and Singer, S. J.
The early expression of myofibrillar proteins in round postmitotic myoblasts of embryonic skeletal muscle 11

Wadsworth, P. and McGrail, M.
Interphase microtubule dynamics are cell type-specific 23

Bayley, P. M., Schilstra, M. J. and Martin, S. R.
Microtubule dynamic instability: numerical simulation of microtubule transition properties using the Lateral Cap model 33

Woodward, R. and Gull, K.
Timing of nuclear and kinetoplast DNA replication and early morphological events in the cell cycle of *Trypanosoma brucei* 49

Zhelev, N. Z., Todorov, I. T., Philipova, R. N. and Hadjiolov, A. A.
Phosphorylation-related accumulation of the 125K nuclear matrix protein mitotin in human mitotic cells 59

Mai, M., Brune, K., Jacoby, B., Kern, H. F. and Mollenhauer, J.
Laminin interactions with ductal pancreatic adenocarcinoma cells: identification of laminin- and collagen-binding proteins 65

Lewandowska, K., Balza, E., Zardi, L. and Culp, L. A.
Requirement for two different cell-binding domains in fibronectin for neurite extension of neuronal derivative cells 75

Perche, O., Hayashi, M., Hayashi, K., Birk, D., Trelstad, R. L. and Sandoz, D.
Origin of type I collagen localized within oviduct epithelium of quail hyperstimulated by progesterone 85

Mackay, A. M., Tracy, R. P. and Craighead, J. E.
Cytokeratin expression in rat mesothelial cells *in vitro* is controlled by the extracellular matrix 97

Buchanan, J. A., Yeger, H., Tabcharani, J. A., Jensen, T. J., Auerbach, W., Hanrahan, J. W., Riodan, J. R. and Buchwald, M.
Transformed sweat gland and nasal epithelial cell lines from control and cystic fibrosis individuals 109

Ridden, J., Ferguson, D. and Kealey, T.
Organ maintenance of human sebaceous glands: *in vitro* effects of 13-*cis* retinoic acid and testosterone 125

Wang, A. Z., Ojakian, G. K. and Nelson, W. J.
Steps in the morphogenesis of a polarized epithelium. I. Uncoupling the roles of cell–cell and cell–substratum contact in establishing plasma membrane polarity in multicellular epithelial (MDCK) cysts 137

Wang, A. Z., Ojakian, G. K. and Nelson, W. J.
Steps in the morphogenesis of a polarized epithelium. II. Disassembly and assembly of plasma membrane domains during reversal of epithelial cell polarity in multicellular epithelial (MDCK) cysts 153

Kirkland, S. C.
Control of fluid transport in human rectal adenocarcinoma cells (HRA-19) in monolayer and collagen gel cultures 167

Heavens, O. S.
Cell studies of total internal reflection fluorescence: effect of lipid membranes 175

Van Duijn, B., Vogelzang, S. A., Ypey, D. L., Van der Molen, L. G. and Van Haastert, P. J. M.
Normal chemotaxis in *Dictyostelium discoideum* cells with a depolarized plasma membrane potential 177

List of Supplements

Commentary

Franklin, R. J. M. and Blakemore, W. F.
The peripheral nervous system–central nervous system regeneration dichotomy: a role for glial cell transplantation 185

Armstrong, J., Patel, S. and Riddle, P.
Lysosomal sorting mutants of coronavirus E1 protein, a Golgi membrane protein 191

Estrada-Garcia, M. T., Callow, J. A. and Green, J. R.
Monoclonal antibodies to the adhesive cell coat secreted by *Pythium aphanidermatum* zoospores recognise 200×10^3 M_r glycoproteins stored within large peripheral vesicles 199

Afzelius, B. A., Bellon, P. L. and Lanzavecchia, S.
Microtubules and their protofilaments in the flagellum of an insect spermatozoon 207

Bonini, N. M. and Nelson, D. L.
Phosphoproteins associated with cyclic nucleotide stimulation of ciliary motility in *Paramecium* 219

Kuriyama, R., Savereide, P., Lefebvre, P. and Dasgupta, S.
The predicted amino acid sequence of a centrosphere protein in dividing sea urchin eggs is similar to elongation factor (EF-1α) 231

Huber, G. and Matus, A.
Microtubule-associated protein 3 (MAP3) expression in non-neuronal tissues 237

Bissonnette, R., Lee, M.-J. and Wang, E.
The differentiation process of intestinal epithelial cells is associated with the appearance of statin, a non-proliferation-specific nuclear protein 247

Norris, W. D., Steele, J. G., Johnson, G. and Underwood, P. A.
Serum enhancement of human endothelial cell attachment to and spreading on collagens I and IV does not require serum fibronectin or vitronectin 255

Lightner, V. A. and Erickson, H. P.
Binding of hexabrachion (tenascin) to the extracellular matrix and substratum and its effect on cell adhesion 263

Bruyneel, E. A., de Mets, M., Dragonetti, C. H., Hooghe, R. J., Di Virgilio, S. and Mareel, M. M.
Effect of glycosylation inhibitors on *N*-glycosylpeptides and on invasion of malignant mouse MO_4 cells *in vitro* 279

Yanagi, A. and Yamamoto, H.
Monoclonal antibody against a conjugation-specific nuclear antigen in *Paramecium caudatum* 287

Tomson, A. M., Demets, R., Musgrave, A., Kooijman, R., Stegwee, D. and Van den Ende, H.
Contact activation in *Chlamydomonas* gametes by increased binding capacity of sexual agglutinins 293

McFadden, G. I.
Evidence that cryptomonad chloroplasts evolved from photosynthetic eukaryotic endosymbionts 303

Itoh, T.
Cellulose synthesizing complexes in giant marine algae 309

Fritz, L., Morse, D. and Hastings, J. W.
The circadian bioluminescence rhythm of *Gonyaulax* is related to daily variations in the number of light-emitting organelles 321

List of Supplements

Commentary
Bayley, P. M.
What makes microtubules dynamic? 329

Leitch, A. R., Mosgöller, W., Schwarzacher, T., Bennett, M. D. and Heslop-Harrison, J. S.
Genomic *in situ* hybridization to sectioned nuclei shows chromosome domains in grass hybrids 335

Jordan, E. G. and Rawlins, D. J.
Three-dimensional localisation of DNA in the nucleolus of *Spirogyra* by correlated optical tomography and serial ultra-thin sectioning 343

Kabnick, K. S. and Peattie, D. A.
In situ analyses reveal that the two nuclei of *Giardia lamblia* are equivalent 353

Bergman, M., Nyman, U., Ringertz, N. and Pettersson, I.
Appearance and origin of snRNP antigens in chick erythrocyte nuclei reactivated in heterokaryons 361

Masson, C., André, C., Arnoult, J., Geraud, G. and Hernandez-Verdun, D.
A 116 000 M_r nucleolar antigen specific for the dense fibrillar component of the nucleoli 371

Blow, J. J. and Sleeman, A. M.
Replication of purified DNA in *Xenopus* egg extract is dependent on nuclear assembly 383

Ornelles, D. A. and Penman, S.
Prompt heat-shock and heat-shifted proteins associated with the nuclear matrix–intermediate filament scaffold in *Drosophila melanogaster* cells 393

Centonze, V. E. and Borisy, G. G.
Nucleation of microtubules from mitotic centrosomes is modulated by a phosphorylated epitope 405

Katsuta, J., Hashiguchi, Y. and Shibaoka, H.
The role of the cytoskeleton in positioning of the nucleus in premitotic tobacco BY-2 cells 413

Lemullois, M. and Marty, M.-C.
Immunocytochemical study of the formation of striated rootlets during ciliogenesis in quail oviduct 423

Knapp, P. E. and Swanson, J. A.
Plasticity of the tubular lysosomal compartment in macrophages 433

Griffiths, G., Matteoni, R., Back, R. and Hoflack, B.
Characterization of the cation-independent mannose 6-phosphate receptor-enriched prelysosomal compartment in NRK cells 441

Nuttley, W. M., Bodnar, A. G., Mangroo, D. and Rachubinski, R. A.
Isolation and characterization of membranes from oleic acid-induced peroxisomes of *Candida tropicalis* 463

Haston, W. S. and Maggs, A. F.
Evidence for membrane differentiation in polarised leucocytes: the distribution of surface antigens analysed with Ig–gold labelling 471

Mori, M., Sadahira, Y., Kawasaki, S., Hayashi, T. and Awai, M.
Macrophage heterogeneity in bone marrow culture *in vitro* 481

Hurst, T. J. and Wilton, J. M. A.
Polymorphonuclear leukocyte phagocytosis of *Capnocytophaga ochracea* in three-dimensional plasma clots 487

Schmidhauser, C., Dudler, R., Schmidt, T. and Parish, R. W.
A mycoplasmal protein influences tumour cell invasiveness and contact inhibition *in vitro* 499

Yost, J. C. and Herman, I. M.
Substratum-induced stress fiber assembly in vascular endothelial cells during spreading *in vitro* 507

List of Supplements

Commentaries
Brown, W. R. A., Dobson, M. J. and MacKinnon, P.
Telomere cloning and mammalian chromosome analysis 521
Brokaw, C. J.
Flagellar oscillation: new vibes from beads 527

Book Reviews 531

Nave, R. and Weber, K.
A myofibrillar protein of insect muscle related to vertebrate titin connects Z band and A band: purification and molecular characterization of invertebrate mini-titin 535

van der Sluijs, P., Bennett, M. K., Antony, C., Simons, K. and Kreis, T. E.
Binding of exocytic vesicles from MDCK cells to microtubules *in vitro* 545

Henle, K. J., Nagle, W. A., Bedford, J. S. and Harvey, W. F.
Protein glycosylation in heat-sensitive and thermotolerance-deficient mutants of Chinese hamster ovary cells 555

Callaghan, J. M., Toh, B.-H., Pettitt, J. M., Humphris, D. C. and Gleeson, P. A.
Poly-*N*-acetyllactosamine-specific tomato lectin interacts with gastric parietal cells. Identification of a tomato-lectin binding $60–90\times10^3$ M_r membrane glycoprotein of tubulovesicles 563

O'Neill, C., Jordan, P., Riddle, P. and Ireland, G.
Narrow linear strips of adhesive substratum are powerful inducers of both growth and total focal contact area 577

Röber, R.-A., Sauter, H., Weber, K. and Osborn, M.
Cells of the cellular immune and hemopoietic system of the mouse lack lamins A/C: distinction *versus* other somatic cells 587

Smith, P. J. S., Howes, E. A. and Treherne, J. E.
Cell proliferation in the repairing adult insect central nervous system: incorporation of the thymidine analogue 5-bromo-2-deoxyuridine *in vivo* 599

McCaig, C. D.
Nerve branching is induced and oriented by a small applied electric field 605

McCaig, C. D.
Nerve growth in a small applied electric field and the effects of pharmacological agents on rate and orientation 617

Ludérus, M. E. E., Spijkers, M. J. and Van Driel, R.
Changes in cyclic AMP-receptor properties during adaptation in *Dictyostelium discoideum* 623

Ta, B. M., Gallagher, G. T., Chakravarty, R. and Rice, R. H.
Keratinocyte transglutaminase in human skin and oral mucosa: cytoplasmic localization and uncoupling of differentiation markers 631

Thomas, J. T., Boot-Handford, R. P. and Grant, M. E.
Modulation of type X collagen gene expression by calcium β-glycerophosphate and levamisole: implications for a possible role for type X collagen in endochondral bone formation 639

Birk, D. E., Fitch, J. M., Babiarz, J. P., Doane, K. J. and Lisenmayer, T. F.
Collagen fibrillogenesis *in vitro*: interaction of types I and V collagen regulates fibril diameter 649

Carraro, L., Gerola, P. D., Lombado, G. and Gerola, F. M.
Pseudo-self-compatibility in ultraviolet-irradiated plants of *Primula acaulis* ('pin' morph) 659

Patriotis, C., Andreeva, M., Pascaleva, M., Ivanov, V. and Djondjurov, L.
DNA–RNA complexes that might represent transient attachment sites of nuclear DNA to the matrix 667

Index of Authors 675

Index of Subjects 679

List of Supplements